

### **REMARKS/ARGUMENTS**

Claims 73-78, 80-99, 102 and 103, stand in the present application. Applicants note with appreciation the Examiner's indication of allowable subject matter in claims 74, 75 and 87-93, but respectfully submit that all of the claims are in condition for allowance in view of the following remarks.

In the Office Action, the Examiner has objected to the drawings and specification for referring to Figure 1. As noted above, Applicants have revised the specification and drawing in accordance with the suggestion by the Examiner. Accordingly, the Examiner's objections to the drawings and specification are believed to have been overcome.

The Examiner has also rejected claims 73, 76-77 and 80-83 under 35 U.S.C. § 102(b) as anticipated by Guile et al. Applicants respectfully traverse the Examiner's § 102 rejection of the claims.

Present claim 73 clearly recites that a catalyst component is directly supported within or at least partially within the pores of the ceramic support. Since the cited reference is not believed to teach or suggest this feature, claim 73 is believed to patentably define thereover as will be explained in greater detail below.

Guile et al. discloses its catalytic material as a catalyst metal or catalyst metal oxide dispersed on an active material such as activated carbon or zeolite. Accordingly, Guile et al. does not disclose a catalyst directly supported on a ceramic body, as recited in present claim 73. Instead, Guile et al. discloses the use of an intermediate material such as activated carbon between the substrate and the catalyst metal. Accordingly,

claim 73 and its dependent claims 76-78 are believed to patentably define over the cited reference.

In rejecting claim 80, the Examiner alleges that Guile et al. discloses "cordierite, Si, and Al (see column 3, lines 27-38 and 46)." Applicants respectfully disagree.

Guile et al. describes some materials that are especially suited to the practice of its disclosed devices. More particularly, Guile et al. at column 3, lines 27-46 states:

The substrate materials are those that include as a predominant phase: ceramic, glass-ceramic, glass, cermet, metal, oxides, and combinations thereof. By combinations is meant physical or chemical combinations, e.g., mixtures, compounds, or composites. Some materials that are especially suited to the practice of the present invention, although it is to be understood that the invention is not limited to such, are those made of cordierite, mullite, clay, talc, zircon, zirconia, spinel, alumina, silica, borides, lithium aluminosilicates, alumina silica, feldspar, titania, fused silica, nitrides, borides, carbides, e.g., silicon carbide, silicon nitride or mixtures of these. Some typical ceramic substrates are disclosed in U.S. Pat. Nos. 4,127,691 and 3,885,977. Those patents are herein incorporated by reference as filed. Especially suited substrate materials are cordierite, mullite, and combinations thereof. Other types of bodies are porous metal bodies. Some preferred types of porous metal bodies, although it is to be understood that the invention is not limited to such, are bodies made of iron group metals such as, for example, Fe-Al or Fe-Cr-Al with optional additions for enhancement of various properties.

From the above, it should be clear that Guile et al. does not disclose "a honeycomb structure comprising at least as a main component a cordierite composition, wherein at least one of Si, Al and Mg elements constituting the cordierite composition being replaced by a metal having a catalyst activity" as required by present claim 80.

Accordingly, claim 80 and its respective dependent claims are believed to also patentably define over the cited reference.

The Examiner has also rejected claims 73, 76-86, 97 and 102-103 under 35 U.S.C. § 103(a) as being unpatentable over Ichii in view of Beauseigneur et al. Applicants respectfully traverse the Examiner's § 103 rejection of the claims.

Initially, it should be noted that the Examiner has not in any way indicated how the above-described references are being applied against claim 73. Accordingly, it is assumed that the Examiner has incorrectly stated that claim 73 stands rejected over the combination of Ichii in view of Beauseigneur et al. In any event, it is respectfully submitted that claim 73 is believed to patentably define over the references cited by the Examiner taken either singly or in combination. If, however, the Examiner maintains that claim 73 is rejected by such a combination of references, Applicants would appreciate receiving from the Examiner a detailed explanation as to which portions of the references are being combined, and why it would have been obvious to make such a combination in rejecting claim 73.

With respect to claim 76, the Examiner merely alleges that Beauseigneur discloses pore diameter less than 5 microns (see column 3, lines 67-68) and catalyst metals (see column 7, lines 65-68), including noble metals (see column 8, lines 65-66). However, since Beauseigneur does not teach or suggest the features of independent claim 73 of the present application, claim 76 which depends from claim 73 is believed to patentably define thereover. It should be noted that the Examiner has not explained how Ichii is combined with Beauseigneur et al. to reject claim 76.

With respect to claim 77, the Examiner alleges that it would have been obvious to use Pt as a catalyst metal. However, since claim 77 does not recite the use of Pt.

Accordingly, claim 77 is also believed to further patentably define over the cited art,

In rejecting claim 78, the Examiner alleges that Ichii discloses "microcracks on particles of 50 microns, which disappear (see Abstract and column 8, lines 52-55)." However, as can be seen in the Abstract, Ichii discloses only particles (crystal diameter) of 50 microns or more, not microcracks of 50 microns or less. Similarly, the Examiner's reference to column 8, lines 52-55 (which refers to Table 1) merely describes particles having a crystal diameter of more than 30 microns but makes no mention of microcracks of 50 microns or less. Accordingly, claim 78 is also believed to further patentably define over the cited art.

At page 4 of the Office Action, the Examiner in rejecting claims 77-86 states "that it would have been obvious to one of ordinary skill in the art at the time the invention was made to use pore diameter, ceria, and metals of Beauseigneur in the honeycomb cordierite of Sato because Beauseigneur discloses his ceria as particularly preferred (see column 6, lines 54-55), in a method of improving thermal shock resistance (title), in a honeycomb cordierite (see column 1, lines 5-24), to support catalyst metals for use as a catalyst (see column 7, lines 65-68)." (Emphasis supplied.) The Examiner's rejection is not understood because no where has the reference Sato been referred to in the Office Action nor have any teachings of Sato been combined with Beauseigneur.

Even if the Examiner meant to refer to Ichii as opposed to Sato, Applicants still respectfully traverse the rejection since it is respectfully submitted that Ichii does not

disclose a honeycomb structure having at least one of oxygen vacancies and lattice defects in the cordierite crystal lattice on which a catalyst component is supported, as required in claim 84. The Examiner's reliance on Ichii at column 1, lines 63-66 for this teaching is clearly misplaced as this portion of the cited reference makes no such mention of the above enumerated features of claim 84.

Nor can any relevant citations from the cited references be located for teaching the features of claims 80-83. As noted above, the Examiner at page 4 of the Office Action combines Sato with Beauseigneur, but in no way provides any reference as to which Sato reference and which portion of the Sato reference is to be applied against these claims.

In any event, it is respectfully submitted that claims 77-86 patentably define over a combination of Ichii and Beauseigneur. The reasons why claims 77-78 patentably define over the cited art have been set out above. If, however, the Examiner maintains that the rejection of claims 80-86 based on the combination of Ichii (or Sato) with Beauseigneur is proper, Applicants would appreciate learning exactly where in the cited references the Examiner finds the elements recited in these claims.

At page 4 of the Office Action the Examiner also applies Beauseigneur against claims 76-93. This rejection is not understood and believed to be in error, since the Examiner has indicated that claims 87-93 are allowed. In any event, it is respectfully submitted that Beauseigneur does not disclose the features of independent claims 73, 80, 87 and 88 of the present application and, therefore, that all of claims 76-93 clearly patentably define thereover.

In rejecting claim 97, the Examiner alleges that Ichii discloses mixing and pouring both of which would cause vibration in a liquid. However, Applicants respectfully submit that Ichii does disclose only pouring a melt in water and does not disclose application of vibration during catalyst supporting as required by present claim 97. Accordingly, claim 97 is also believed to patentably define over the cited art.

In rejecting claims 102-103, the Examiner alleges that Ichii discloses  $2\text{MgO} \cdot 2\text{AlO}_3 \cdot 5\text{SiO}_2$  (see column 5, line 29). With respect to claim 103, Applicants wish to note that this claim depends from allowed claim 87 (through allowed dependent claim 89). Accordingly, the Examiner's rejection of claim 103 is simply not understood. Moreover, since claim 102 depends from what is believed to be allowable claim 80. The Examiner's rejection of this claim is believed to be in error and should be withdrawn.

The Examiner has also rejected claims 94, 96 and 98-99 under 35 U.S.C. § 103(a) as being unpatentable over Ichii as applied to claim 73 above, and further in view of Knapton et al. Applicants respectfully traverse the Examiner's § 103 rejection of these claims.

Again, since the Examiner has not applied Ichii against claim 73, the Examiner's rejection of these claims is improper on that basis alone. Moreover, Knapton discloses the use of CVD for forming an alumina layer, but does not disclose use of CVD for catalyst supporting. Accordingly, there is no reason to combine Ichii and Knapton, but even if the references were combined Applicants' inventions as recited in claim 94 would not have resulted.

In rejecting claim 96, the Examiner alleges that use of an organic solvent having a higher surface tension would have been obvious. However, present claim 96 is

directed to using an organic solvent having a lower surface tension than water.

Accordingly, claim 96 is believed to patentably define over the cited art.

With respect to claims 98 and 99 it is respectfully submitted that Knapton does not teach or suggest the process of production recited in these claims. Accordingly, these claims are also believed to patentably define over the cited references.

The Examiner has also rejected claim 95 under 35 U.S.C. § 103(a) as being unpatentable over Ichii as applied to claim 73 above, and further in view of Abe et al. Applicants respectfully traverse the Examiner's § 103 rejection of claim 95.

As noted above, the Examiner has not applied Ichii against claim 73 in the present Office Action and, accordingly, the Examiner's rejection of claim 95 is defective on this basis alone. Moreover, Abe discloses using a supercritical state for drying a gel but does not disclose using a supercritical state for catalyst supporting. Therefore, the combination of a supercritical state disclosed in Abe with Ichii to constitute Applicants' invention, as recited in present claim 95, would not have been obvious.

Therefore, in view of the above remarks it is respectfully requested that the application be reconsidered and that all of claims 73-78, 80-99, 102 and 103, standing in the application, be allowed and that the case be passed to issue. If there are any other issues remaining which the Examiner believes could be resolved through either a

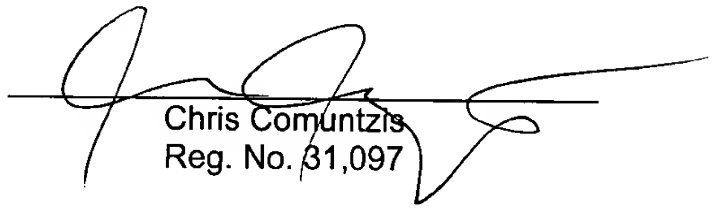
KOIKE et al  
Appl. No. 09/546,227  
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supplemental response or an Examiner's amendment, the Examiner is respectfully requested to contact the undersigned at the local telephone exchange indicated below.

Respectfully submitted,

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